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THE PROCESSES OF SCULPTURE.

WORK IN CLAY, PLASTER AND MARBLE—MODELLING IN THE ROUND.

A MAN wearing a high white cap and an apron, brandishing a chisel in his left hand and a mallet in his right, and striking off chips from a huge block of marble which represents the future statue—this is the idea that many people have of a sculptor. The real sculptor when at work will be found to be a man with hands as dirty as those of a boy making mud pies, who is cutting, punching, and smoothing a mass of soft clay. There may not be a fragment of marble in his studio, for with marble the sculptor has practically little to do. His work is generally in clay, but sometimes in plaster.

Sculptor's clay is generally prepared by a grinding process in a mill. It is then mixed with water, and finally allowed to harden in cakes, which are sent to the studios. The sculptor, chipping off pieces from a cake of clay, mixes them with water and works the mass until the whole, though still thick and tenacious, becomes soft and is readily moulded. This is his material. If a bust is to be done, a large mass of clay is roughly piled upon the flat top of a high stand, and fashioned into the rude likeness of a head. The implements used are the fingers and a kind of spatula made of wood, sometimes ebony, pointed and curving at both ends, so as to present a convex as well as a concave surface. Then the process becomes more delicate, and the sculptor's art is put to the test. Studying intently the face of the sitter, the sculptor pares away little bits of clay, here indicating a line and there a prominent bone or muscle, striving to catch the characteristic expression of his subject and to avoid making the bust appear heavy and wooden. If pressed for time the sculptor occasionally takes measurements of the sitter's head to assist in the work, but oftener he depends entirely upon the eye. If

a statue is to be modelled the clay requires support, which is obtained by plastering it upon a framework of strong wires or wood. The clay, which is constantly kept wet by being sprayed with water and wrapped in cloths, is more likely to crack, however, when it is kept in position by a framework. Modelling is sometimes done in plaster, which offers certain disadvantages on account of its hardening rapidly and tending to give a dull, lifeless expression to the face of the bust. In plaster modelling, as sometimes in working with clay, "ebauchoirs," pointed iron instruments varying slightly in their shapes, are used to clip off unnecessary projections and to smooth surfaces. In working upon an ideal statue the artist, starting with his conception of the motive or idea of the

work, is aided by models, and by the study of casts and busts.

When the bust or statue is completed in clay it must be put into plaster, for the clay, drying rapidly on exposure to the air, shrinks in size and is liable to crack. With this the sculptor has little to do. The services of plaster modellers, usually Italians, are employed. The first cast, which is to form the mould of the permanent cast, is made in two parts like the halves of an oyster-shell. There are two ways of doing this. Often a string is passed over the head of the bust, coming down over each ear. Then the liquid plaster is thrown on before and behind this string until the bust is completely covered. While

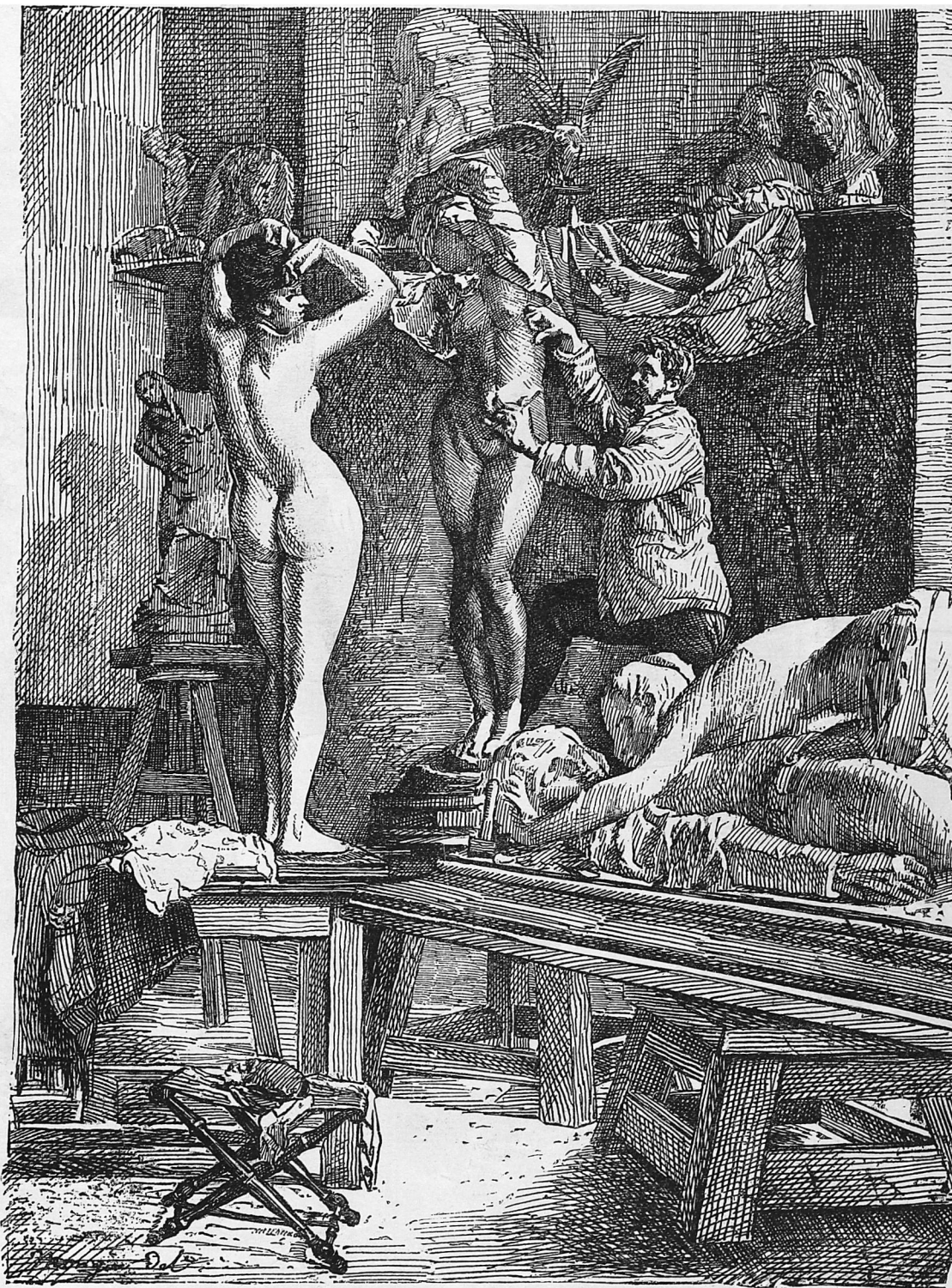
mould from adhering to the sides. When the halves are fitted and bound together the liquid plaster is poured in and allowed to harden. Then the shell, owing to the use of the oil, is readily chiselled away and the plaster cast is complete. In case of a large statue, the parts are usually separable, and arms, legs, the head, and trunk are cast in separate pieces. A similar process is carried out for decorative forms of sculpture, like friezes, fireplaces, and the finer forms of bas-reliefs that sometimes decorate ceilings.

After being cast in plaster the bust or statue is ready to assume its permanent form in marble or bronze. Marble-cutters and bronze-casters form two distinct classes, the former being usually Italians and the latter Frenchmen.

In selecting a block of marble, of which the best comes from Italy, great care is taken to avoid yellow discolorations and flaws. After chiselling away the outer part of the block of marble, so that a rough likeness of a head is approached, the marble-cutter is aided by a curious instrument which it is rather difficult to describe. It resembles somewhat a small wooden cross, the arm of which is movable, and has attached to it a finger which can be adjusted in any position. Three points are taken on the plaster bust, usually one on the forehead and one on each shoulder. These are marked by little metallic disks which are pasted on, or short tacks with broad heads are driven in. The cross is placed against the bust so that the extremities touch these three points, the exact spots where they come in contact with the cross being carefully noted. Then while the cross is in this position the adjustable finger is moved until its end touches a given point on the bust, and it is secured in place. Then three points are taken on the marble corresponding to those on the plaster, and the cross is placed against them in exactly the same position. But the roughness of the marble prevents the movable finger from touching the fourth point as it did upon the plaster.

Hence the workman

carefully chisels and files away the marble until this finger can assume the same position in which it had been placed on the plaster, when it is evident that that point on the marble corresponds exactly to the similar point on the plaster. Then the cross is placed upon the plaster again, and the finger moved until another fourth point is marked by its adjustment. Removing the cross to the marble, inequalities are cut away until the finger is in place, and a second point is secured. This process continues, aided by various measurements, and a trained eye, until the plaster bust is reproduced almost exactly in marble. The casting of a bust in bronze is exceedingly difficult and complicated. A good description of the process will be found in THE ART AMATEUR for August.



THE SCULPTOR AND HIS MODEL.

DRAWN BY MONGIN FROM THE PAINTING BY HIRSCHMAN.

The following instructions by A. L. Vago* necessarily go over part of the ground covered above. The accompanying illustrations, taken from models by eminent French sculptors, all show masterly freedom and breadth of treatment, the emulation of which is strongly urged upon the student. Mr. Vago says :

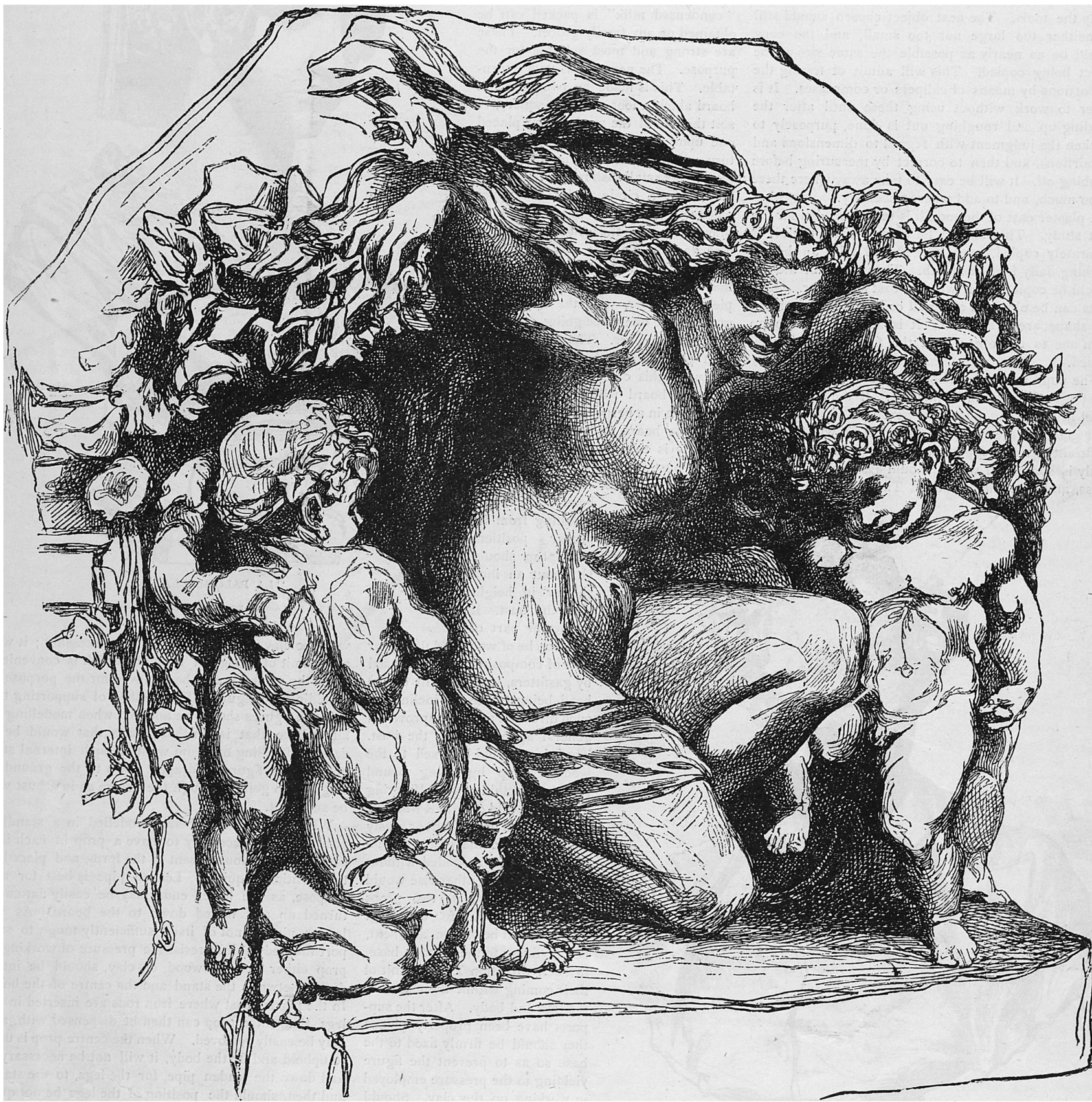
Clay of the lightest color is preferable, as dark clay obscures the shadows by which form is, to a certain extent, rendered distinguishable. If the clay be dry and hard when procured, it should be broken into small pieces and sprinkled with clean water. It should

clay, as thereby the hands will become used to its nature, and the ability to manipulate it facilitated.

It is advisable to begin not on too large nor on too small a scale, nor on any difficult or intricate subject ; neither should the novice attempt to model anything "out of his own head." Some common object should be chosen to copy from ; say an old boot, to begin with, as this may be started on a flat piece of wood, and will not need interior props to support the clay, although a peg driven into the flat board will prevent the clay from slipping off.

elling, unless the alteration can be effected by cutting out or letting in a wedge of clay, as the case may need.

The old boot, when attempted, will enable the pupil to understand better how to use the tools than words can inform. The tendency of the clay to slip or shift from its base will suggest the necessity of inserting pegs, by means of which the clay may be secured to the board. If the work is left unfinished, it should be carefully wrapped round with wet cloths, for when left not thus covered up, the clay is apt to get dry and inflexible. If this should happen, an occasional



"THE PAVILION OF FLORA."

DRAWN BY LANÇON FROM THE GROUP BY CARPEAUX.

then be left to soak and occasionally stirred about so that it be moistened evenly throughout. It is possible to have the clay too stiff, as also too wet, to work it easily. When too dry or stiff add a little more water, and if too flabby and wet add a little dry clay finely powdered. It should then be well kneaded ; this should be done by the person who is going to use the

In beginning to model, do not squeeze the clay into form in the hands, but lay it on the flat board, and gradually build it up until it assumes the shape of the object being copied. Before introducing any detail see that the proportions are tolerably correct. It is of the greatest importance to attend to the contour previous to putting in the finishing strokes, as where it is attempted to finish from the beginning it is likely to be found, on making a general survey, that the work on the whole is out of proportion. To correct work that has been once finished frequently requires much remod-

sprinkling with water will restore its pliancy—a brush will serve best for this purpose. A glass shade placed over the model so as to exclude the air answers better to keep the clay moist than wet cloths. When the model is too large for a shade, a piece of oiled cloth laid over it may answer to prevent its moisture from evaporating.

The old boot or whatever other object may be chosen, is intended to give the novice something of dexterity in managing the clay, rather than for producing something for its own sake,

* Condensed from "Modelling in Clay," by A. L. Vago. London: Simpkin, Marshall & Co. Two articles on modelling in clay in high and low relief appeared in the THE ART AMATEUR for May and June, 1882. The present article deals more particularly with modelling in the round.

Should the old boot be adopted as a copy to work from, it should be filled with paper or whatever else may serve to fix its shape, for if this gets altered after the model is begun, it will give the trouble of altering the model to the last shape. On this account there is a disadvantage in working from a flexible copy, though in some cases it might be considered convenient on the same account, since it admits of being twisted to suit the model where it is wished to avoid the trouble of working the model up to the original shape of the copy.

Having faithfully executed his initiatory model, the pupil will have learned how to work the clay and how to ply the tools. The next object chosen should still be neither too large nor too small, and the copy should be as nearly as possible the same size as the object being copied. This will admit of testing the proportions by means of calipers or compasses. It is better to work without using these until after the building up and roughing out is done, purposely to quicken the judgment with regard to dimensions and proportions, and then to correct by measuring before finishing off. It will be easy to take away where there is too much, and to add where necessary.

A plaster cast of the mouth is recommended for the next study. This should be worked upon until it is accurately copied, even if it should take an hour's working daily for one month. Then a cast of the eye should be copied, after which a cast of the ear. Such casts can be obtained at small cost. Those of classical shape are preferable. It is advisable not to go from one to the other until the first has been well copied.

The pupil may now choose such subjects as may be most agreeable to the inclination. If the desire be to excel in modelling busts, the next best study is a cast of the face of the Venus of Milo. This will be quite sufficient to test the patience of the pupil; for in this study is some hair which should be copied, first the mass, and then the minutiae. The hair, which might

Angelo is another good study. In this cast the beard is represented in masses and not by fine lines. Where it is possible, it is better to represent hair by masses or tufts, than by lines, which give a harsh or hard effect rather than that of a wavy softness.

At starting to model a bust in the absence of a modelling stool, some boxes should be arranged, one upon another, to such a height as to bring the work within easy access of the operator, so as to prevent stooping or over-reaching. The boxes in which "condensed milk" is packed can be obtained of any family grocer. These are strong and most suitable for the purpose. The next requisite is a turn-table. This is made by two pieces of board about a foot or more square, to suit the size of the work, being placed one upon the other, the top piece to turn upon a pivot fixed in the bottom piece. Six small sash rollers fixed equidistant in a circle under the upper piece will prevent the board becoming immovable from the weight of the clay. The dampness of the clay will be apt to cause the turn-table to warp. This may be prevented by screwing two flat pieces together, with the way of the grain in the one piece going crosswise that of the other. The turn-table is then placed upon the boxes or stool, and upon this comes the flat piece of wood or board with a prop fixed to the centre in a perpendicular direction.

On the board and about the prop, the clay is then laid and worked up into a bust. This prop going up the centre of the bust is to support the head and prevent it falling from its proper position. The prop should be about an inch shorter in height than the bust. If the lower part of

the prop be of wood and the upper part of composition pipe, as used by gasfitters, it will admit of the head being twisted or inclined in such direction as may improve the general appearance of the bust. The pipe should be fixed to the wooden prop by being bound round with thin wire. If string be used instead of wire it will give to the clay an unpleasant or musty smell. Where the entire human figure is being modelled without drapery or what otherwise would serve to support it, two props are necessary—one for each leg. These should be of iron, and bent, before fixing to the wooden base, in such direction as to admit of their coming within the centre of the legs and body. After the supports have been properly placed they should be firmly fixed to the base so as to prevent the figure yielding to the pressure employed in working on the clay. Should any part of the iron protrude as the model progresses, it is better to leave it projecting than to distort the model by altering its form on purpose to cover up such part, as any prominence of this kind in the model may be easily removed from the plaster cast. It will make the props more firm to bind the one to the other in the body wherever they meet. One prop at least should go

through the whole length of the figure. If the arms are not resting against the body, they will need supporting; a piece of composition pipe inserted



"LA PALOMBELLA."

DRAWN BY LANÇON FROM THE BUST BY CARPEAUX.



ALEXANDRE DUMAS THE YOUNGER.

DRAWN BY LANÇON FROM THE BUST BY CARPEAUX.

be considered only a minor point, will, in practice, be found most difficult to treat, but by diligence it may be mastered. The mask of St. Jerome by Michael

through the whole length of the figure. If the arms are not resting against the body, they will need supporting; a piece of composition pipe inserted

with the clay upon it, should this be necessary; it will also admit of being cut through, which is convenient when the arms have to be removed for the purpose of moulding the figure. This method of supporting the limbs in figures should be adopted when modelling in alto-relievo, that is, in those parts that would be in danger of falling off from want of such internal support. If the figure be draped down to the ground, a single prop going through the centre as in a bust will be sufficient.

When animals are being modelled in a standing position, it is necessary to have a prop in each leg, each to be previously bent to the form, and placed in the position required. Leaden pipe is best for this purpose, as the lower ends may be easily flattened, turned up and nailed down to the board. As the leaden pipe is not of itself sufficiently tough to support the body and to resist the pressure of working, a prop either of iron, wood, or clay, should be introduced between the stand and the centre of the body. In the plaster cast where iron rods are inserted in the legs, the centre prop can then be dispensed with, and may be easily removed. When the centre prop is used to uphold and fix the body, it will not be necessary to nail down the leaden pipe, for the legs, to the stand, and then, should the position of the legs be not quite right, it will be possible to shift or remove them.

The model should not be carved from a solid block, but the clay should be laid on in pieces one upon another, and beaten together into the shape desired by means of a short stick. The tool for roughing out is then employed to remove the clay from those parts where there is too much, and to spread the same where there is insufficient, after the manner of spreading butter upon a piece of bread. The clay has a tendency to adhere to the tools and to accumulate thereon. Such clay as is found clinging to the tool while working should be taken off and applied to the model where an addition may be needed. By this method of working, the clay will be economized and saved from falling and making a mess on the floor.

If it is possible to choose the place for modelling, it is better where the light comes in from above than from the side. When only a side light can be obtained, it will be necessary, after working on one side, to remove the model so that the light may fall on the other side, otherwise the likeness will be perceptible only under one particular light, and from only one point of view. A good portrait should strike from every aspect. When working by gas or candle light, the position where the light can come down upon the front of the work is best. It is most safe, where possible, to vary the position of the light either by shifting the light or the position of the model.

As previously advised, it is useless to introduce details until the contour has been completed. This applies in every branch of modelling, and particularly in busts. As in map-drawing, if the countries are wrong, the introduction of towns and rivers will not make them right. Before introducing the mouth and eyes, the pupil should watch that the head is in proportion to the shoulders; that the width of the head is in proportion to its length. The nose may then be roughly indicated; after this, the ears, whose position at the sides of the head should be determined from the nose, as the position of the ears varies in different heads. In some cases the ears are situated farther back from the face than in others, and sometimes higher up than in others. The opening or orifice of the ear is, in some heads, in a line with the lower part of the nose; in others, it is as high up as the eyes. The place of the mouth should be judged of from the nose, and indicated near to or distant from the nose according to the length of the upper lip. The eyes, too, in some heads are set nearer to the nose than in others, and sometimes more deeply. These differences should not be overlooked by the pupil who wishes to engage successfully in the art of modelling portrait busts.

Some busts are arranged to stand on their own base, as in term or block busts which terminate

bases; their appearance is improved when such busts are elevated upon a plinth or stand. Most of the antique busts are mounted on a round stand, something of the ogee or torus pattern. It is usual to model the bust without this stand, and to mount it on a stand after it has been cast in plaster. The stands may be had ready made.

To make a mould from the clay model, and to make a plaster cast from the said mould, is an art distinct from that of modelling. When a model has been sufficiently well executed to be worth reproducing in plaster, it is most safe to employ a professional moulder to do it. In the best hands it is very risky work, and in most cases the plaster cast has to be retouched by the artist. Clay models should be moulded as soon as possible after they are finished, because if left to get dry they crack and lose much of their original character.*

In modelling the human figure, a knowledge of the external muscles will be of great advantage. This may be gleaned from anatomical figures. Plaster casts of these, ranging about two feet high, can be obtained for a few dollars. There is a very fine reduction about this size, by Flaxman, of the Gladiator, which is most useful in the study of figure drawing or modelling. In schools of art this is a favorite subject to copy.

In modelling draped figures much attention is needed in the proper arrangement of plaits and folds. In drapery, one particular fold requires another, where a graceful consistency is maintained, as much as a given position of the arm requires a

particular disposition and elevation or contraction of its different muscles.

The best-draped studies are found in casts from the antique sculptures. In these the folds or plaits are represented by straight rather than by curved lines. Even where a fold assumes a circular form, it is effected in the best models, not by curved, but by broken straight lines. The zigzag strokes which occur in rough or unfinished sketches, whether drawn or modelled, have an artistic effect which is often lost or made to look mechanical, where rounding off or high finish is attempted. In modelling, mere indications have often a more artistic effect than a studied roundness. Running lines, whether curved or straight, exist only in inferior works of sculpture, while in the works of the best masters these are carefully broken up,

and arranged in such manner as to avoid an offensive

* Hints for moulding clay models in plaster were given in THE ART AMATEUR for May, page 144.

repetition. What is said here with regard to drapery applies equally to the hair, where balance should be maintained, but repetition avoided.



"OPHELIA."

DRAWN BY VALENTIN FROM THE BUST BY AIZELIN.

In producing original models of draped figures it is usual, even among experienced sculptors, to clothe a lay figure and then to copy the same. Some artists are so particular with regard to their subject, in fixing the attitude and in arranging the folds of the dress so as to fall gracefully, as to spend several days thereon before they commence to copy it. And being aware that each kind of fabric has its own anatomy or physiognomy, they will provide for their model silk, satin, or whatever material they wish to represent in their work.

In well-proportioned figures it is usual to find the length of the body from head to foot to be about eight times the length of the face. The length of the hands bears a certain proportion to the fore-arm, and this to the arm from the elbow to the shoulder. The foot is in length shorter than the leg from the ankle to the knee-joint, and this is shorter than the leg from the knee to the hip.

An idea of the proportion which the limbs bear to each other may be inferred from the following numbers, which appertain to a figure measuring five feet ten inches from head to foot.

From ground to ankle, . . .	2 inches 7 eighths.
From ankle to knee, . . .	18 " 0 "
From knee to hip, . . .	19 " 2 "
From hip to collar-bone, . . .	16 " 6 "
From collar-bone to top of head, . . .	13 " 1 "
Length of foot, from heel to toe, . . .	10 " 5 "
Hand, finger-end to wrist-joint, . . .	8 " 3 "
Wrist-joint to elbow-joint, . . .	10 " 0 "
Elbow to shoulder, . . .	12 " 0 "

These numbers apply to casts from antique models of the most symmetrical kind.

The following method of measuring is recommended to secure correct proportions: Cut a stick of wood the same length as the figure intended to be modelled, whatever its size may be; mark off the same into twenty-four equal parts, then number each part in regular order from end to end.



ALEXANDRE DUMAS THE ELDER.

DRAWN BY BICHARD FROM THE BUST BY CHAPU.

before reaching the outer ends of the shoulders. Shoulder busts, in which the arms are partly represented, would look "squatty" if left to rest on their own

Number 1 marks about the ankle-joint from bottom of foot.					
" 7 "	"	"	knee	"	"
" 13½ "	"	"	hip	"	"
" 20 "	"	"	shoulder	"	"
" 24 "	"	"	top of head	"	"
Length of foot about ¾ parts.					
Long finger-end to wrist-joint 3 parts.					
" "	"	"	elbow	6½ "	
" "	"	"	shoulder	10 "	
Length of face about 2½, or nearly 3 parts.					

The head varies in size according to the character represented in the figure. Where physique is the predominating quality, as in athletes, the head will be small compared with the body. Where mind is in the ascendency, as in able statesmen and philosophers, the head is larger and forms the most attractive feature. The female head is smaller than the male head. To measure the body, therefore, by lengths of the head, is a method, though common, by no means infallible. The head in children is much larger compared with the body, even than in statesmen.

The body is longer in the child than in the adult figure, to which alone the foregoing measurements apply. The growth is greater in the limbs during youth until manhood.

figure this order is nearly reversed. In nature there are exceptions to this rule which should be studiously avoided as models to work from.

ETCHING FROM NATURE.

WHEN Mr. Seymour Haden was in this country recently and his etchings were exhibited, special interest was shown in those plates which he had executed out-of-doors direct from nature. Of course, etching from nature should not be attempted by any but a good draughtsman. To reproduce by printing the work of a person who cannot draw is a serious matter. A single bad sketch in pencil or charcoal can do no harm—if it has gone out of your possession some day you can reclaim it and destroy it. But deliberately to multiply the evidence of your ignorance in etching is another matter.

With this prefatory caution—very necessary, for the beginner in art with the indomitable courage of ignorance is ready to undertake anything and everything—we proceed to quote from a chapter on open-air etching in "Sketching from Nature," by Tristram J. Ellis, an excellent little volume of Macmillan's "Art at Home" series. For more complete directions as to the process of etching, the reader is referred to the illustrated article on the subject published in THE ART AMATEUR for September, 1881:

The materials requisite are a copper-plate (always obtain the best quality only), a dabber of silk or kid, a ball of etching-ground, and coarse and fine etching needles. A mirror is essential for etching buildings or any places where it is desired they should print the right way—that is, that they should be drawn the reverse of nature on the copper-plate. It will be found convenient to have a shallow box made, into the bottom of which the copper-plate can slide. The hand should rest upon a stiff flat ruler that is kept off the copper by the sides of the box. The mirror can be most easily fastened in the lid of the box, and pivoted

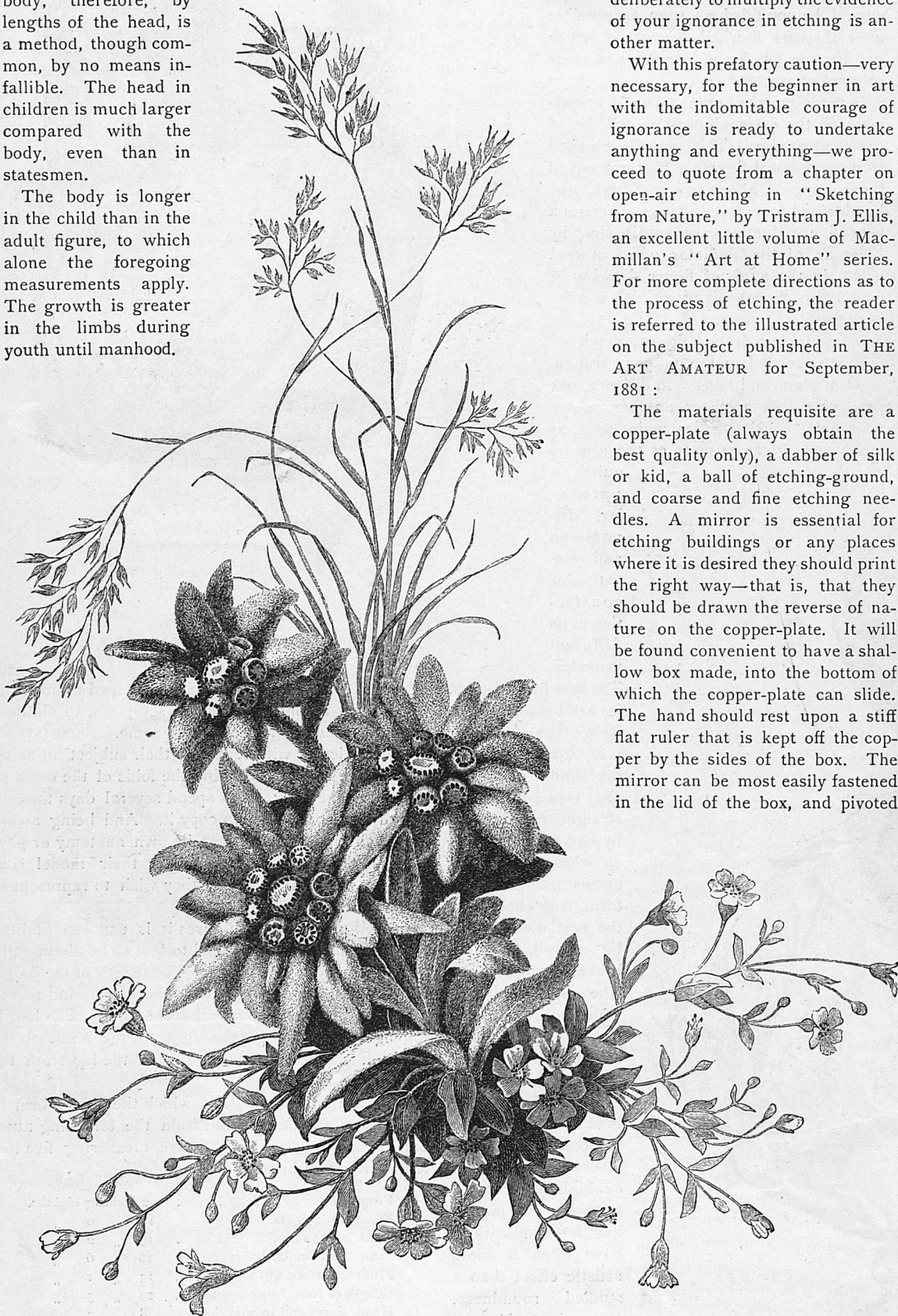
over a gas or petroleum stove. The ball of etching-ground must be dabbed occasionally on the top till its substance begins to come off freely, then it must be rubbed rapidly over, and the plate should be taken off before the ground commences to smoke. The whole surface should then be strongly pounded with the silk dabber till it becomes of one uniform brown shiny tint. Before it has time to cool it has to be passed backward and forward over a smoking flame, either of a petroleum lamp or wax taper, very carefully, so that the black deposit from the smoke forms evenly and sufficiently quickly to prevent the flame from burning the film. The blackened plate is then ready for use.

It will sometimes be found convenient, if the subject has to be reversed, to sketch it carefully in pencil, and then reverse it on to the plate with tracing paper that has been rubbed over with some white chalk. The outlines should be then drawn in carefully by the point with a firm hand, those of the sky just hard enough to make sure that it is in actual contact with the copper. This can easily be felt. There is a slight but pleasant resistance to the movement of the hand. The point must not be allowed to slide on the surface of the copper, or most probably the "ground" will not be completely cut through, and an interrupted and shaky line will result. For the foreground objects the point should be dug into the copper as deeply as is compatible with retaining the power of making the lines free and bold, for this is the great advantage etching possesses over line engravings. Never lose sight of this quality of freedom, but do not let your drawing be loose and careless, for a single careless stroke in etching stands out in a staring way that is not known in a pencil, pen-and-ink, or fusain drawing. Even there it is bad enough, but it is not perpetuated by endless copies as in an etching. Always bear in mind that you are not working for one copy, but for a hundred.

When every intended line of the work is complete, and after the back of the copper-plate has been protected by Brunswick black or some varnish, the plate may be put into the acid bath. The bath may be of varying strengths, and a convenient one is obtained by taking equal parts of commercial nitric acid and ordinary water. A little old liquid left from previous bitings should be added, or a few scraps of copper, to take off the first edge of its strength, as otherwise it will commence by biting too quickly. When all the lines have been bitten deeply enough for the extreme distance, the plate must be taken out, dried with blotting-paper, and the distance carefully painted over with "stopping-out" varnish; and when thoroughly dry it should be returned to the bath, that the lines intended to be stronger may be bitten more. By successively stopping-out and biting a great deal of gradation may be given to the lines. The exact amount necessary can only be found out by experience; but some idea of the depth of the lines can be obtained by feeling with the point, and if the acid is of the strength mentioned above, two minutes for the extreme distance and half an hour for the added bitings of the foreground lines may be allowed. The temperature of the air is here taken to be about sixty degrees, but if higher this exposure will be too long, and if lower it will not be long enough. A very little difference of temperature makes a great deal of difference in the biting. The plate may be cleaned with benzine, petroleum, or turpentine.

Many artists prefer etching with very weak acid when the plate is in the bath. The foreground should then be commenced first, and the extreme distance last, so that by the time the distance is finished the foreground should be sufficiently bitten to be dark enough to come well forward. It is only by the various thickness of the lines that the effect of distance or nearness is given. The difference of thickness in the lines between the distance and foreground should be very great, much more than is necessary in a pencil sketch, for the printing nearly always levels the strength of effect. A skilful printer, however, is able to make a great deal out of a plate, by leaving or taking the ink film from its surface at his own discretion; yet in that case it is the printer and not the etcher who is the artist.

The "biting" with acid had better be done indoors, and the "stopping-out" should be done as much as possible on the ground, and in presence of nature; for the etcher is then better able to see what parts will require to be least bitten, and he is also surer to add good work to his plate.



ALPINE FLOWERS. DRAWN BY J. STAUFFACHER.

The method herein proposed of measuring the proportion of the limbs applies equally to slim or thick-set figures; accordingly, there can be no settled or fixed measurements employed to decide what should be the width or circumference of the chest compared with the height of the figure. In the male figure the circumference of the chest should be greater than that of the loins or about the hips, while in the female

vertically, so that by rotating it, and also opening the lid by the hinges, any desired spot may be reflected at one side and rather behind the artist. He should, of course, sit with his back nearly turned toward his subject. For trees the mirror is unnecessary.

The plate is held between the jaws of a hand-vice, and if of small size is most easily heated by being held